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## PROCEEDINGS OF THE CLUB

MARCH 8, 1904

This meeting was held at the College of Pharmacy, with Vice-president Rusby in the chair; there were seventeen persons present. The minutes of the preceding meeting were read and approved.

The first paper on the scientific program was by Professor Francis E. Lloyd on "Recent Investigations on the Pollen-tube," and was an interesting exposition of the parallel results of Longo's investigations on the behavior of the pollen-tube in Cucurbitaceae and Professor Lloyd's work on Rubiaceae.

Longo finds that in *Cucurbita Pepo* L., the ovary is provided with a special conductive tissue reaching to the neck of the flask-shaped nucellus by means of which the pollen-tube follows a completely intercellular course from stigma to embryo-sac. In other species of *Cucurbita* and in *Citrullus vulgaris*, the neck of the nucellus is not long enough to reach to the conductive tissue, so that for a short distance the tube must move through a cavity. On reaching the neck of the nucellus, the pollen-tube forms a bulla that produces lateral outgrowths which Longo believes are for the purpose of reaching out after food materials, as their size seems to depend on the amount of starch present. This view is rendered somewhat questionable by the phenomena observed by Wylie in *Elodea*, where pollen-tubes may produce similar "cystoids" in the free space of the locule but never produce them in the tissues where food substances must be more abundant.

Longo supports his conclusion that the intercellular course of the pollen-tube is followed not because of inability to grow in open space, by showing that pollen-tubes may be produced in moist air from such normally endotropic forms as *Humulus Lupulus* L., *Picea excelsa*, etc. He interprets chalazogamy as a physiological fact having no bearing on phylogeny. In plants having endotropic pollen-tubes, he considers the direction of their growth to be determined chemotactically.

The main points in Professor Lloyd's independent conclusions from work on Rubiaceae are: (1) The form of cells in the conductive tissue does not determine the course of the pollen-tube, for in *Richardsonia* and *Diodia teres* the cells are elongated at right angles to the path of the-tube. He believes the chemotactic stimulus which determines the direction to be differentially distributed from the egg cell. (2) The ectotropic or endotropic behavior of the pollen-tube is a physiological character.

The second paper of the evening, by Mr. Edward W. Berry was entitled "Some Monotypic Genera of the Eastern United States and their Ancestors." The phylogeny of *Liriodendron*, was briefly sketched, from its first appearance as a narrow simple-leaved form in the mid-cretaceous of the Atlantic coastal plain, its spread to Europe and Asia, its development into large lobate-leaved forms, and its final extinction except for the existing species of eastern North America and a waning variety in eastern Asia. Drawings of all the fossil species were shown, and numerous blue-prints of the leaves of the existing species, showing their parallelism and range of variation.

*Sassafras* was the second genus considered. It was pointed out that while the described fossil species were numerous, many of them are not allied to *Sassafras*. The species which were considered as positively identified were discussed, as well as the peculiar characters of the leaves of the existing species, both ancient and modern forms being abundantly illustrated.

The third genus discussed was *Comptonia*. Its former range and development were described and drawings of a number of the species were shown.

All three genera were considered to have taken their origin from simple-leaved ancestors which flourished during the closing days of the lower cretaceous, and to have originated in America, becoming dominant and widespread in pre-glacial times, finally becoming restricted to their present habitats chiefly through the agency of the glacial conditions of the Pleistocene period.

The paper was discussed by Professors Rusby, Underwood, and Lloyd and Dr. Howe. Adjournment followed.

TRACY E. HAZEN,  
*Secretary pro tem.*

MARCH 30, 1904

The Torrey Botanical Club met in the morphological laboratory at the New York Botanical Garden with about 20 persons present. Dr. D. T. MacDougal called the meeting to order; Dr. C. C. Curtis was elected chairman and Mr. W. T. Horne secretary.

The first paper on the scientific program was "Notes on the Cytology of the Aquatic Fungi" by Dr. Cyrus A. King. Schroeter's classification of the Phycomycetes was reviewed and attention called to the fact that the conidia of the Peronosporineae resemble sporangia since they germinate by forming internal zoöspores. In the Saprolegniaceae, according to Trow, the eggs are at first multinucleate, all except the sexual nucleus in each egg being disposed of by digestion. Dr. King's researches have shown that in the Leptomitaceae, as far as known, the oögonia are at first multinucleate and the supernumerary nuclei are disposed of by migrating to the periphery of the cell where they are cut off in a distinct periplasm. In *Araiospora* the peripheral nuclei surround themselves with cell walls in such a way that the oöplasm is surrounded by a layer of periplasmic cells. In *Sapromyces* there is also a periplasm in which the nonsexual nuclei are cut off; it is however reduced to a very thin layer. The formation of a body in the center of the egg of *Araiospora* by the coalescence of several small cytoplasmic patches from various parts of the oöplasm was described. The body probably is an attraction center for the sexual nuclei. A similar structure was not found in *Sapromyces*. *Rhipidium* was also briefly described. The presence of a periplasm and the migration of the nuclei from the developing egg indicates that the Leptomitaceae are more closely allied to the Peronosporineae than to the Saprolegniaceae. Photomicrographs were shown from Dr. King's preparations showing the facts brought out and showing also indirect nuclear division in the oögonium and zoösporangium of *Sapromyces*.

An interesting discussion followed.

The second paper was by Mr. B. C. Gruenberg and was entitled "Chemical Investigations on *Haematoxylon*." Haema-

toxylin is one of the most valuable of commercial dyes and the business of supplying the wood from which it is made forms an important industry in some of the West Indies. Considerable annoyance has been caused by the fact that some of the logwood or *Haematoxylon* trees contain little or no dye, whole shipments even having been condemned on this account. The so-called "bastard logwood" is not always to be distinguished at the time of cutting. It is either lighter in color or if dark at first it can be recognized by not becoming still darker on seasoning for some months as does the good wood.

Professor Earle investigated the disease in the field and concluded that the lack of pigment was not due to external conditions, or to disease, or to immaturity, but that the logwood is a variable plant and the bastard form is a variety or subspecies.

The percentage of carbon in the ash-free material was determined for different samples with somewhat varying results but showing that the good wood contains a slightly higher percentage, due probably to the carbon in the pigment.

Analysis of leaves, stems and roots of one-year-old plants showed that the bastard plants contained slightly more ash and water, but the difference was very slight.

Extracts of the pigment were made with a number of different solvents from varying samples of wood. The extracts with different solvents did not give parallel results as indicating the amount of pigment. In diluting the extracts chemical changes occurred. Alkalies increase the color of extracts of the good wood but not extracts of the bastard wood. Acids have a parallel effect.

Results on the soluble substances in the wood were not satisfactory on account of decomposition on drying. There are probably several pigments.

After a discussion of the paper the meeting adjourned.

WILLIAM T. HORNE,

*Secretary pro tem.*

## NEWS ITEMS

Dr. H. C. Cowles, of the University of Chicago, devoted a large part of the month of April to field studies in plant ecology in the vicinity of Miami, Florida.